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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,317	07/29/2003	Otto Rosenauer	TITN 20.668 (330906-00019)	6601
7590 10/25/2005 PANDISCIO & PANDISCIO 470 TOTTEN POND ROAD WALTHAM, MA 02451-1914			EXAMINER SAYOC, EMMANUEL	
			ART UNIT 3746	PAPER NUMBER

DATE MAILED: 10/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/629,317	ROSENAUER ET AL.	
	Examiner	Art Unit	
	Emmanuel Sayoc	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 6 and 8-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/6/05, 11/17/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The informal drawings are of sufficient quality for examination purposes only. Accordingly, new formal drawings are required at the time the application is allowed. Failure to timely submit new formal drawings at the time of allowance will result in **ABANDONMENT** of the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1, 3-5, are rejected under 35 U.S.C. 102(b) as being anticipated by White (U.S. 2,281,899).

White in Figure 1, teaches a piston pump capable of transporting highly viscous media from a storage reservoir (well bore not shown, container or chamber holding fluid entering inlet 36) to a spray gun. The pump has a differential piston (moving valve 46 constitutes a piston in that it slides up and down separating two pressure chambers above and below the piston) positioned in a cylindrical housing (8) and translationally

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drivable. The pump (lower end piston 52 and pump chamber 30') has a first pressure chamber (30') connected to a second pressure chamber (15) via a connecting line (25) having a check valve (19) therein. The pump is further connected with a storage reservoir (well bore not shown, container or chamber holding fluid entering inlet 36) via an inlet valve (38). The differential piston (46) having a dipping piston (52) that dips into the medium to be transported. The dipping piston (52) is attached to an aligned, protruding piston rod (29), wherein a pass-through (see bore within solid component forming passages 24, with rod 29 passing therethrough) of the piston rod (29) from the first pressure chamber (30') is closed fluid-tight by at least one seal (shown not enumerated). The pump has a transport line (26) in the vicinity of the pass-through (see bore within solid component forming passages 24, with rod 29 passing therethrough) of the piston rod (29).

The transport line (24, 26) is, at least in part, laterally offset from the piston Rod (29).

The pass-through of the piston rod (29) has at least a portion of the transport line (portion 24) provided in a connecting piece (see solid component forming passages 24) connected with the housing (8) of the differential piston (46), and wherein an extension piece (23) receives the dipping piston (52) and is attached to the connecting piece (see solid component forming passages 24).

The inlet valve (38) is located up-line from the first pressure chamber (30').

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4. Claim 1, 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Sweeney (U.S. 6,193,476 B1).

Sweeney in Figure 1, teaches a piston pump capable of transporting highly viscous media from a storage reservoir (bore not shown, container or chamber holding fluid entering inlet 4) to a spray gun. The pump has a differential piston (38) positioned in a cylindrical housing (47) and translationally drivable. The pump (lower end piston 37 and pump chamber 42) has a first pressure chamber (42) connected to a second pressure chamber (41) via a connecting line (15) having a check valve (12) therein. The pump is further connected with a storage reservoir (bore not shown, container or chamber holding fluid entering inlet 4) via an inlet valve (5). The differential piston (38) having (as being part of the invention and pump assembly) a dipping piston (37) that dips into the medium to be transported. The dipping piston (37) is attached to an aligned, protruding piston rod (11), wherein a pass-through (see component 18 with rod 11 passing therethrough) of the piston rod (11) from the first pressure chamber (42) is closed fluid-tight by at least one seal (20). The pump has a transport line (15, 41) in the vicinity of the pass-through (18) of the piston rod (11).

The transport line (15, 41) is positioned, at least in part, concentric to the piston rod (11).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over White, as applied to claim 1, and in further view of Alaze (U.S. 6,267,569 B1).

White set forth a device as described above, which is substantially analogous to the claimed invention. The White device differs from the claimed invention in that there is no explicit teaching of the inlet valve including a ball received in a cage through which fluid can flow and in which the ball is urged by a spring towards the valve seat. Alaze in Figure 1 teaches a piston pump with an inlet valve (40, 44) including a ball (40) received

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in a cage (46) through which fluid can flow and in which the ball is urged by a spring (42) towards the valve seat (44). This allows a predetermined biasing force on the ball valve to allow a predetermined amount of elevated pressure to build up before the valve is opened, generating higher compression ratios and guided precise movement of the ball valve. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the White device by, incorporating the spring biased cage ball valve configuration, as taught by Alaze, in order to advantageously allow a predetermined biasing force on the ball valve to allow a predetermined amount of elevated pressure to build up before the valve is opened, thus generating higher compression ratios and guided precise movement of the ball valve.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney, as applied to claim 1, and in further view of Alaze.

Sweeney set forth a device as described above, which is substantially analogous to the claimed invention. The Sweeney device differs from the claimed invention in that there is no explicit teaching of the inlet valve including a ball received in a cage through which fluid can flow and in which the ball is urged by a spring towards the valve seat. Alaze in Figure 1 teaches a piston pump with an inlet valve (40, 44) including a ball (40) received in a cage (46) through which fluid can flow and in which the ball is urged by a spring (42) towards the valve seat (44). This allows a predetermined biasing force on the ball valve to allow a predetermined amount of elevated pressure to build up before

the vale is opened, generating higher compression ratios and guided precise movement of the ball valve. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the White device by, incorporating the spring biased cage ball valve configuration, as taught by Alaze, in order to advantageously allow a predetermined biasing force on the ball valve to allow a predetermined amount of elevated pressure to build up before the vale is opened, thus generating higher compression ratios and guided precise movement of the ball valve.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over White, as applied to claim 1.

White set forth a device as described above, which is substantially analogous to the claimed invention. The White device differs from the claimed invention in that there is no explicit teaching of the first pressure chamber having a volume of about 1.2 to 2.5 times the volume of the second pressure chamber. With respect to the exact volumes of the chambers in the pump, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136. One of ordinary skill in the art would have been able to determine the chamber volumes for pump optimization.

10. Claims 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney, as applied to claim 1.

Sweeney set forth a device as described above, which is substantially analogous to the claimed invention. The Sweeney device differs from the claimed invention in that there is no explicit teaching of the first pressure chamber having a volume of about 1.2 to 2.5 times the volume of the second pressure chamber. With respect to the exact volumes of the chambers in the pump, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136. One of ordinary skill in the art would have been able to determine the chamber volumes for pump optimization.

The examiner takes official notice that flow through pipe couplings to connect segments of tubular pipes was well known at the time the invention was made in order to extend pipe length and fluid passages therein. In the Sweeney pump, it would have been obvious to extend the pump for pumping a greater depths. In particular it would have been obvious to use pipe couplings to extend the length of the rod (11) to extend the depth range of the pump utilizing tubes or limited length. In this case, segments of the tubular piston rod (11) would have been attached to the differential piston (38) by a

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connecting piece (the pipe coupling) through which fluid can flow and which is attached to the differential piston (through the pipe segments of piston rod 11).

Allowable Subject Matter

11. Claims 6, and 8-11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to similar piston pumps.

U.S. Pat. 6,193,482 B1 to Chen, and 5,080,565 to Schultz – teach valved pistons similar to that of the claimed invention.

U.S. Pat. 1,065,709 to Myers, 3,164,102 to Schmidt, 2,841,086 to Deitrickson, 2,730,957 to Riede, 3,827,339 to Rosen et al., and 1,543,087 to Baker - teach similar pumps to that of the claimed invention.

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (571) 272 4832. The examiner can normally be reached on M-F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on (571) 272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Emmanuel Sayoc
Examiner
Art Unit 3746

ECS